

REMARKS

This paper is responsive to the Office Action dated June 30, 2005 and introduces no cancellations, additions or amendments to the presently pending claims. Accordingly, remaining in the application is independent claim 24 with its dependent claims 25-32; independent claim 33 with its dependent claims 34-43; and independent claim 44 with its dependent claims 45 and 46.

International Search Report

The Office Action indicates that the earlier submitted International Search Report has been received and considered by the Examiner, and Applicants thank the Examiner for his attention to the same. It is noted, however, that original claims 1-23 were pending in the corresponding International Patent Application at the time that the International Search Report was prepared. As such, the references cited in the International Search Report were considered to be "documents of particular relevance" only with regard to original claims 1-23.

Rejection on the Art

The Office Action indicates that claims 24-46 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,159,554 to Buma, et al. and French Patent No. 2 630 784 to Langois.

Buma is directed to an electronically controlled vehicle suspension system as illustrated in FIGURES 2, 3 and 4, for example. The general operation of the suspension system is embodied in the process steps shown in the flow charts of FIGURES 5-8 and discussed with regard thereto beginning in column 7 at about line 20. After a careful review of the Buma patent, Applicants respectfully submit that the same does not teach at least steps of 1) discontinuing a leveling action, 2) waiting or delaying continuation of the leveling action until a vehicle acceleration decreases below a first pre-determined threshold, and then 3) continuing the leveling action, as recited in the presently pending claims.

As indicated above, Langois is a French patent, the text of which is, of course, in the French language. We have reviewed a machine translation of the Langois patent, which appears to be directed to a device of correction of height, elevation and diving of a vehicle.

Though it is recognized that such machine translations are not particularly accurate, a general understanding of the content and scope of the translated document can usually be attained. A copy of the translated text is included herewith as Exhibit A. Based upon a review of the machine translation, the Langois patent does not appear to teach or suggest at least steps of 1) waiting or delaying continuation of the leveling action until an acceleration decreases below a pre-determined value, and 2) continuing a discontinued leveling action. Rather, it seems that Langois is directed to a hydro-pneumatic mechanical system that selectively circulates fluid to and from suspension members.

In light of the foregoing discussion, Applicants respectfully submit that the presently pending claims patentably define over the art of record for at least the reasons stated.

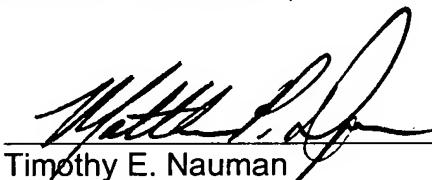
CONCLUSION

It is respectfully submitted that the foregoing amendments and discussion are fully responsive to the latest Office Action and that the claims are in proper form. Having addressed all of the outstanding objections and/or rejections, the subject application is now believed to be in condition for allowance. Reconsideration of the claims and an early notice of allowability is earnestly solicited.

Alternatively, in the interests of compact prosecution and advancing this application to issue, Applicants respectfully request that the Examiner telephone the undersigned to discuss any of the foregoing and/or to make any suggestions that the Examiner may have to place the case in condition for allowance.

Respectfully submitted,

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July 29, 2005

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Babel Fish Translation

In English:

The invention relates to a device of correction of height, of elevating and diving for motor vehicle with hydropneumatic suspension. It is known that the vehicles with hydropneumatic suspension are generally provided for each axle with a corrector height, able to correct according to the load, the height of the axle compared to the ground. The corrector height which is used in this case generally compose of a drawer, hydraulics suitable to connect according to the load of the axle, the hydraulic system with a source of pressure or with the tank; this drawer is generally ordered by a detector which locates the height of the axle. When the detected height corresponds with a set point, the drawer takes again its neutral position and the hydraulic system of the suspension is isolated. To avoid the inopportune intervention of the corrector height during the elastic clearance of the suspension, it is necessary to temporize the corrector height so that it intervenes only when the detected height corresponds to a radial force. Thus the corrector height intervenes principally to the stop, according to whether one charges or that the vehicle is discharged. The vehicles with hydropneumatic suspension equipped with such correctors height are sensitive to the elevating and the diving; it being with-statement that the back or before is crushed according to whether the vehicle accelerates or brakes. The elevating or the diving is presented thus in the form of phenomena of pitching related to the variations of acceleration independently of the profile of the road. The device which is the subject of the invention and which is intended to correct the variations height according to the load, and the elevating or the diving according to acceleration, are characterized by the fact that it comprises a corrector height deprived of means of temporization, connected to the circuit of suspension of the axle by the intermediary of a flow corrector comprising of the retractable means of temporization and the means sensitive to acceleration to put in circuit or except circuit these means of temporized

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tion. It is also characterized by the fact that the flow corrector comprises a metering jet assembled downstream from the corrector height and a hydraulic drawer provided with a throat suitable to short-circuit the jet as well as means sensitive to acceleration to move the drawer. It is also characterized by the fact that the means sensitive to acceleration are composed of a suspended mass whose displacement forwards in the event of braking, towards the back in the event of acceleration, generates in both cases the displacement of the drawer towards the position which shorts-circuit the jet. According to an alternative of the invention, the flow corrector is composed of an electromagnetic sluice gate cooperating with a accéléro- meter provided with his means of conditioning of signal. One described hereafter, by way of nonrestrictive example, a mode of realization according to the invention, with reference to the annexed drawings in which: Figure 1 is a diagrammatic sight of the device assembled on the hydraulic system of the suspension of an axle. Figure 2 is a cross-section of a corrector height deprived of means of temporization. Figure 3 is a cross-section of a flow corrector. Figure 4 is a diagrammatic sight of the device according to an alternative of the invention. One sees on Figure 1 an axle with suspension hydropneuma- tick including/understanding two arms 1, support of wheels 2 articulated & the structure into 3. On arms 1 are assembled articulated stems of piston 4, same jacks of suspension 5 them connected hydraulically to neumatic accumulators hydraup- 6. Two accumulators 6 of the axle are connected between them by a conduit 7, itself connected by a conduit 8 to the device of correction object of the invention and which includes/understands a corrector height 9 deprived of the means of temporization and a flow corrector 10. The corrector height 9 is visible on Figure 2. He includes/understands a body 11 comprising a conduit 12 connected to the flow corrector 10, a conduit 13 connected to a source high pressure and a conduit 14 of return to a tank not represented. In body 11 is fixed a comprising cylinder 15 of drillings 16, 17, 18 communi- as respectively with the conduits 12, 13, 14. In cylinder 15 a drawer 19 provided with a throat 20 laid out slides so as to connect according to the position of the drawer leads it 12 of use to the high pressure or to the tank. Drawer 19 is connected by leg 21 and the kneecap 22 to means not represented sensitive to the height

of the axle. Such a corrector height, well-known in the suspensions hydropneumatic is generally equipped with means of temporization which were removed for the needs for this invention. Figure 3 shows out of cut the flow corrector 10. It comprises inside a case a 23 body 24 whose crude could be the same one as that of body 11 of the corrector height. It is fixed by bolts 25 and 26 at a fixed part of the body of the vehicle, so that the plan of cut represented is a longitudinal vertical plan with preferably before on the right and the back on the left of the figure. In the body 24 is horizontally fixed a cylinder 27 provided with the drillings 28 and 29 connected respectively to conduit 8 of the suspension and to the corrector height 9, by conduits perpendicularly laid out with the plan of cut and not represented. Conduits 28 and 29 communiquent by the intermediary of a jet 30 which can be shorted-circuit by throat 31 of a sliding drawer 32 in the axis of cylinder 27. Drawer 32 is in permanent support on a leaf spring 33. Jet 30 comprises a gauged throttling and fact function of timer for the corrector height 9. At the interior of the case a 23 mass 34 is interdependent of a cover 35 provided with three rollers 36, 37, 38 whose axes are aligned with the centre of gravity of mass 34. Cover 35 is articulated by the axis of the intermédiaire roller -- diaire 37 with a second cover 39 itself articulated with an axis fixes 40 so that all 39 and two cover constitutes a double clock. The roller intermédiaire diaire 37 is a permanent support on drawer 32 on the side opposed to spring 33. The two identical rollers 36 and 38 which are located on both sides roller 37 have a diameter slightly larger than roller 37. At rest rollers 36 and 38 are resting against a fixed vertical wall 41 so that the axis passing by the centre of gravity of the mass and the joints of the double pendulum is vertical, with the intermediate roller 37 resting against drawer 32 laid out horizontally. The operation of the device is as follows. When the vehicle brakes, mass 34 moves forwards vehicle, on the right on Figure 3; cover 35 swivels around its lower roller resting against wall 41. The intermediate roller 37 moves towards the left while making swivel cover 39 and by pushing drawer 32 against spring 33. Jet 30 is shorted-circuit and the corrector height 9 can intervene instantaneous lies to restore the plate of the vehicle. When the vehicle accelerates, mass 34 moves backwards, on the left on Figure 3. Cover 35 swivels around its higher roller resting against wall 41. The intermediate roller 37 moves towards the left

while making swivel cover 39 and by pushing drawer 32 against spring 33. The correction of plate intervenes instantanément as in the preceding case. It goes without saying the invention is not really limited to the mode of realization described and illustrated which is given only by way of example. It includes/understands on the contrary all the alternatives which could be carried out according to its spirit, it is thus for example that Figure 4 represents an alternative of invention-in which the flow corrector is composed of an accelerometer 42 provided with the electronic means with conditioning with the signal and of a clean electromagnetic sluice gate 43 & to close or to open a parallel circuit & a jet of temporization identical to jet 30. Claims (French) CLAIMS 1 - Device of correction height and elevating or diving for axle of motor vehicle with hydropneumatic suspension, characterized in that it comprises a corrector height (9) deprived of means of temporization, connected to the circuit of suspension of the axle by the intermediary of a flow corrector (10) comprising of the retractable means of temporization (30) and the means sensitive to acceleration (34) to put in circuit or except circuit the means of temporization. 2 - Device according to claim 1, characterized in that the flow corrector (10) comprises a metering jet (30) assembled downstream from the corrector height, average hydraulics suitable for short circuiter the jet and means sensitive to acceleration to act on average hydraulics. 3 - Device according to claim 2, characterized in * what the flow corrector (10) comprises a hydraulic drawer (32) provided with a throat (31) suitable for short circuiter the jet, and means sensitive to acceleration (34) to move the drawer. 4 - Device according to claim 3, characterized in that the means sensitive to acceleration make of a double clock (35, 39) oscillating in a plan parallel with the axis of the vehicle, and cooperating with average rubber bands (33) and means of thrust (41) to move, in acceleration as in braking, the drawer in the direction which shorts-circuit the jet. 5 - Device according to claim 4, characterized in that the clock doubles composes of a mass (34) solidai- Re of a first cover (35) provided with three rollers (36, 37, 38) whose them axes are in alignment with the centre of gravity of the mass, aforesaid the first cover (35) being suspended by the axis of its intermediate roller (37) to a second cover (39) articulated on a fixed axis

(40); with the ' intermediate roller (37) in permanent support on the drawer (32) laid out horizontally, against average rubber bands (33) and the rollers inferior (36) and superior (38) in support at rest on a fixed vertical thrust (41). 6 - Device according to claim 5, characterized in that the first cover (35) swivels around the point of contact of its lower roller or its higher roller with the vertical thrust (41) according to whether the suspended mass (34) moves forwards or backwards, actuating in both cases the intermediate roller (37) in the same direction which corresponds to the displacement of the drawer (32) against the average rubber bands (33). 7 - Device according to claim 2, characterized in that the flow corrector (10) comprises an electromagnetic sluice gate (43) co-operator with an accelerometer (42) provided with his means of conditioning of signal.

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L'invention concerne un dispositif de correction de



hauteur, de cabrage et de plongée pour véhicule automobile à suspension hydropneumatique.



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French to English



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